

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Appln. No. : 10/509,178  
Applicant : Manfred HEIM *et al.*  
Filed : September 27, 2004  
TC/A.U. : 1794  
Examiner : Betelhem SHEWAREGED  
Docket No. : 2732-146  
Customer No. : 6449  
Confirmation No. : 5202

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**SUBMISSION OF DECLARATION OF MANFRED HEIM  
PURSUANT TO 37 C.F.R. § 1.132**

Dear Sir:

Applicants submit herewith for consideration by the Examiner, the Declaration of Manfred Heim pursuant to 37 C.F.R. § 1.132.

Respectfully submitted,

Date: January 29, 2009

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Attachment: Declaration of Manfred Heim

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Applicant : Manfred Heim et al.  
Filed : September 27, 2004  
Art Unit : 1794  
Examiner : Betelhem SHEWAREGED  
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P.O. Box 1450  
Alexandria, Virginia 22313-1450

DECLARATION OF MANFRED HEIM  
PURSUANT TO 37 C.F.R. § 1.132

Dear Sir:

I, Manfred Heim, declare:

I. Background and Experience

1. I am an inventor of the subject matter described and claimed in United States Patent Application Serial No. 10/509,178, filed on September 27, 2004, entitled "Security Element and Method for Production Thereof."
2. My education consists of Diploma in Physics, Technical University of Munich, in July 1994 and a PhD degree in experimental Physics, Technical University of Munich in 1998.
3. I am employed with Giesecke & Devrient GmbH, the assignee of the above-referenced Application entitled "Security Element and Method for Production Thereof, and have been with Giesecke & Devrient GmbH since November 1998.
4. My responsibilities as team leader of the R&D division includes R&D of security elements and realization in production.
5. My experience includes 10 years R&D and application of vacuum coating and

development of microoptical security features.

6. I consider myself to be at least one having ordinary skill in the art in the field of security element design for documents of value to which the claims of the present application are directed.

7. I have carefully reviewed the present application, the Office Action dated January 29, 2008, and the cited references (US Patent Nos. 5,146,773 ("Kaule"), 4,791,017 ("Hofmann") and 6,202,591 ("Witzman").

## **II. Security Elements for Documents of Value**

8. As fully explained in the present specification, bank notes and other documents of value are provided with an element that is easily visually recognizable, such as a security thread. Gold tones are often used to emphasize the value of the document and for their striking looks.

9. Before the time of the present invention, which I understand to be March of 2002, these security threads were made by vapor depositing a gold colored coating in thin gold layers on to aluminum or silver.

10. The high costs of gold hurt the profitability of manufacturing such threads.

## **III. The Claimed Security Thread**

11. The present application describes a novel security element for a document of value. The application discloses that a multi-component coating may be used to create a precious metal colored coatings while maintaining constant color tone.

12. One skilled in the art, reviewing the present application and the claims, would

understand that claim 1 recites a method for producing a security element that requires at least "measuring a color composition of a precious-metal-colored coating by reflection measurement."

**IV. The Prior Art Cited in the Office Action**

13. As stated above, I reviewed the Kaule, Hofmann and Witzman references. In my opinion, one skilled in the art at the priority date of the present invention could not have combined the prior art cited to create the present invention.

14. One skilled in the art would, after reading the present application, understand that the color tone of a composition is dependent on the composition of the coating, and not the thickness of the coating.

15. One skilled in the art would, after reading the present specification, understand that the composition of the coating varies during production because each element of the coating composition evaporates at a different rate, because each component contributes a different color to the coating.

16. The present invention maintains substantially a constant color tone by controlling the composition of the coating. The method involves measuring the color composition of the coating by reflection measurement.

17. One skilled in the art would, after reading the present application, understand that maintaining a color composition is different from optimizing the color of a coating, as disclosed in Witzman.

***The Witzman Patent***

18. One skilled in the art, reviewing both Witzman and the present application, would not be taught or motivated to measure a color composition by reflection measurement as

claimed.

19. One skilled in the art would understand Witzman as disclosing only single component coatings, not multi-component coatings.

20. One skilled in the art, having read Witzman, would understand that Witzman is directed to the problem of reflection, transmission and/or absorption of a selected wavelength of light.

21. Witzman discloses that the key characteristic for a given component is its thickness.

22. Witzman discloses that multiple components are placed in separate layers, because each component should have a particular thickness.

23. One skilled in the art, having read Witzman, would understand that only the top coating can evaporate, and therefore, that Witzman could not have faced the problems of multi-component coatings.

24. One skilled in the art, having read Witzman, would understand Witzman's reference to optimizing the color of a coating to refer to a visual effect controlled by a thickness of the coating, not the color composition of the coating.

25. One skilled in the art, having read Witzman, would be surprised that the color of a multi-component coating changes over time due to different evaporation rates of the different components, because Witzman has no disclosure of multi-component coatings.

26. According to Witzman, color is a function of optical interference, which is controlled by thickness.

27. Without the present application, one skilled in the art would follow the approach of Witzman, in which the coating is applied to a substrate at the beginning of the manufacturing process.

28. Because substrate is typically about 3,000 meters to 10,000 meters, a coating

applied to the substrate at the beginning of the process would be subject to evaporation by the end of the process.

29. One skilled in the art would, after reading the present application, understand that continued production of a constant color tone over an extended period of time is not a trivial problem.

30. One skilled in the art would, after reading the present application, understand that the composition of the coating continues to change over time because each component evaporates at a different rate, each evaporation rate being a function of that component's vapor pressure.

31. One skilled in the art would, after reading the present application, understand that the changing composition causes the color of the composition to change, and that this should be corrected so that each security element has the same color composition.

32. One skilled in the art would understand after reading "[f]or measuring the transmission and/or reflection optical devices known to persons skilled in the art are used" in paragraph [22] of the present application, that the present invention is not directed to an optical device.

33. With only the benefit of the quote in paragraph [22], one skilled in the art would understand the prior art to include devices that measure an amount of light transmitted or reflected. One skilled in the art would understand that measuring the amount of light transmitted or reflected does not measure the color of the light.

34. One skilled in the art reviewing the patent application and the claims, would understand that the claimed method for producing a security element additionally requires comparing the measured color composition to a desired color composition and correcting deviations in the color composition of the coating, from the desired color composition, by adjusting a heating power or energy of an electron beam.

35. One skilled in the art, having read the cited references, would not be taught or motivated to perform the above steps for at least the reasons above.

V. Conclusion

36. In my opinion, none of the cited references disclose the claim element identified above in paragraph 12 or any of the three claim elements identified above in paragraph 35.

37. All statements made herein of my own knowledge are true and all statements made on information and belief, are believed to be true. These statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

By: Manfred Heim  
Manfred Heim

Date

December 19, 2008

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